Governor's EHR Task Force Sub Committee*#2*

EHR in Private Medical Practices

Prepared by the Department of Medical Assistance Services

September 2005

Table of Contents

DRAFT

Part I: Executive Summary

Introduction: Task Force and Study

In April 2005 Governor Warner issued Executive Directive 6 to create the Governor's Electronic Health Records (EHR) Task Force. The Task Force was established to conduct a two-year study and advise the Governor and the General Assembly in a first-year report made by November 1, 2005.

Vision Statement for EHR in Private Medical Practices

The Subcommittee created the following vision statement to guide its deliberations:

> *"The Commonwealth of Virginia seeks to improve public health and health care while increasing the efficency of all health care programs funded by the Commonwealth."*

This vision will in large measure be obtained by electronically exchanging the maximum amount of patient demographic, administrative, billing and clinical information among any and all providers within the state who are treating patients whose primary funding source is the Commonwealth.

Part II: Executive Directive for Subcommittee #2

Subcommittee #2 is charged with studying Electronic Health Record technology and the factors that can promote its use by physicians in private medical practice.

Critical Factors for EHR's Success in Private Practice

Subcommittee # 2 addressed the following topics in its June and July meetings. Individual members commented on each topic as an assignment by the Subcommittee Chair. These early comments were used to expand the Subcommittee's study of these topics in further depth.

Collaboration among Stakeholders

From the 6/8/2005 Subcommittee Meeting John Dreyzehner, M.D. stated that there was "one key issue regarding Health Information Infrastructure with regard to sharing health care information among providers and that was the need to create ways competing entities in our competitive health care environment can create the mechanisms to achieve a zone of cooperation and collaboration in the larger zone of competition. He outlined two approaches into gaining insight: 1) Research should be done to find out the extent of existing collaborations among health care stakeholders and 2) Of those who have created this zone of collaboration, why and how they have cooperated."

DRAFT

Promotion of EHR in Various Provider Settings

Carolyn Bagley commented in the 6/8/2005 Subcommittee Meeting "there was very little communication between providers partly because of connectivity issues."

Development of Technology Platform

Recognizing the development of a technology plan was an indirect undertaking for Subcommittee # 2 the first thoughts were to look at what was being developed in other states. An early "home work" assignment was to review Florida's pilot projects as examples of what one State adopted. Diana Horvath also briefed us in the 7/5/2005 Executive Meeting that platform issues are being addressed by Subcommittee # 4 Chaired by the Honorable Eugene Huang, Secretary of Technology.

Identification of Obstacles and Options

Obstacles to adoption of electronic health records were also discussed in our early sessions. A common obstacle stated by Doctor Dreyzehner in the meeting of July 18, 2005. "One reason some providers have not done it so far is because of money, that is, the costs of the system, implementation and ongoing support with a low perceived ROI. The primary financial beneficiaries of the efficiencies these systems promise are often seen by doctors as the "Payors", that is, employers and the insurance companies." A key obstacle on the patient/consumer side are privacy concerns, in particular, the "Big Brother" feeling that their lifetime of sometimes embarrassing or consequential health care issues could now be forever knowable and discovered, even if they are no longer clinically relevant or important to the patient's care.

There will be a desire and need to keep some information indefinitely, such as vaccination histories or blood pressure readings but standards will have to be developed to allow some information to "sunset" once it is no longer clinically relevant. The data might still be available but technologically stripped of identifiers and not available via an exchange. It might still be housed and still identifiable at the original point of care as is now the case with paper records.

Additional data collection priorities and systems

From our first teleconference it was decided that the subcommittee members would partner to encourage study of the available data. In addition, the subcommittee staff committed to providing high quality research material. The Task Force staff also created a Listserv "Governor E.Health" and a dedicated Web Page "eHealth Electronic Health Records" to provide data and important Task Force activity information to the members and the public.

Assurance of Privacy and Security

One of the specific tasks of the Task Force is to make recommendations on how to protect confidentiality and security. Subcommittee # 4 will be leading the Task Force in making recommendations in assuring privacy and security through setting standards consistent with federal and State law and regulations.

DRAFT

Development of Performance Measures and Benchmarks

The Subcommittee Chairs were briefed that the Governor's Legislative Liaison Office is tracking federal legislation related to Health Information Technology at the federal level. This information will be used by the Task Force to identify upfront funding mechanisms, ongoing sustainability of projects, Safe Harbor legislation of EHR use, and national standards and interoperability developments.

Recommendations of Policy and Budget to Governor and General Assembly

The four Subcommittees of the Task Force will combine their findings to develop its recommendations to the Governor and General Assembly.

Conclusions: Roles and Recommended Actions

During its deliberations over the summer, the Subcommittee Chairs concluded that the Commonwealth can play several direct roles *over the next five years* to promote the use of electronic health records.

Roles for the Commonwealth

Payer

- Provide payment incentives (e.g., 2-4% payment improvement) for providers and/or plans that incorporate and utilize key health care IT tools
- Pilot patient incentives for preventive care follow-through, chronic disease management, specific disease populations and disparate populations.

Purchaser

- Incorporate incentives for plan and provider adoption of EHR elements in self-funded State health plan contracts
- Provide personal health record for employees, coupled with incentives for completing health assessment, addressing risk factors and managing chronic disease

Eliminating Regulatory Barriers

- Update state medical and health data privacy laws as necessary to support secure and effective EHR systems. The Commonwealth has a concern for health care data privacy and the perpetual existance of data in electronic form.

Provider

- Serve as active business partner in Regional Health Information Organizations (RHIOs) through local health departments
- Pilot systems for exchanging information between public mental health and acute care systems
- Commit to share state IT infrastructure with qualified safety-net providers in underserved areas
- Assure all regions of the State are equitably enabled to participate in EHR development.

Bully Pulpit

- Develop public information campaign on benefits of health care information infrastructure
- Hold EHR annual summit with public and private stakeholders
- Reward early adopters with recognition

Infrastructure Creation

- Establish grant and/or loan repayment funds for safety-net providers to participate in regional health information exchange initiatives
- Support needed internet/bandwidth capacity in medical shortage areas
- Create state office for providing technical support to RHIO development

Five-year Plan for Task Force Recommendations and Commonwealth

Generally, the Electronic Health Records Task Force recommendations and the Commonwealth plan should focus on the next 5 years, while providing 5-7 major objectives.

- These objectives should come from the amalgamation of the subcommittee recommendations put forth in their reports.
- The plan should have two major philosophical themes, first enable data exchange, second providing market driven assistance. This should translate into spending more effort and funding aimed at connecting and collaboration of the Commonwealth to providers, rather than constructing mechanisms for providers to exchange data among themselves.
    - By definition a statewide payer and purchaser of health care means the Commonwealth has influence and opportunities to lead by example. Rewarding providers for implementing EHRs and for electronic submission of clinical data should be a keystone concept for the next 5 years.
    - The Commonwealth should Construct programs to encourage and incentive state employees to seek providers with effective reporting technologies.
- A critical outcome during the next 5 years is for all state operated provider settings to have EHRs. Why should physicians and others adopt EHRs, when they aren't universally implemented in state facilities? As these sites come on line, they can be connected to

local providers and continue with a strategy to connect all providers to the Commonwealth. The pulpit is a useful tool, and the Commonwealth should preach the value of EHRs, but it must do so from the position of accomplishment and experience.

- When it comes to major infrastructure assistance for RHIOs, the Commonwealth should not move aggressively, except for helping Hospital Emergency Departments connect to the state and local markets as desired.. RHIOs may well become successful if they can overcome competitive issues, legislative barriers, lack of funding, lack of standards, and low adoption rates of systems within providers. For the next few years, while the facts on their success are so unclear, the Commonwealth should direct most of its efforts towards endeavors other than full-blown RHIOs.

Recommended Actions

In order to obtain the vision for streamlined care, the following strategic actions are recommended.

1. Provide a program of incentives for Medicaid and State Employee physicians and other providers to install and use Electronic Health Records (EHR).

2. Directly promote adoption of EHRs to physician stakeholder groups.

    - Coordinate all long-term state transactions exchanged under a published plan using the highest amounts of standard technologies. Link financial incentives and disincentives to the migration away from paper and towards data information exchange national standards, and.National Health Information Network (NHIN).

3. Encourage the Medicaid Program to promote electronic data exchange with the ultimate goal of eliminating paper in its billing and reporting requirements.

4. Electronic Heatlh Record Pilot Project (Attachment A)

    Community Health Center organizations in Virginia serve the uninsured and underserved populations throughout the state in eighty-eight (88) urban and rural sites. Last year, the centers served over 62,000 uninsured and over 36,000 Medicaid patients with Primary Health Care needs.

    In 2000, the centers coordinated their information technology efforts to establish a statewide network and operate a Practice Management system purchased from one vendor. Today, the Community Health Centers have strengthened the network by continuing to take advantage of the changes in connectivity as they develop, particularly in rural areas and by looking for opportunities to be cost-effective.

    The plan is to develop a state wide integrated electronic health record system that initially operates within the functioning network. Then, to reach out to partners such as hospitals, private practices, laboratories, radiology offices, the Department of

Medical Assistance, the Virginia Department of Health and insurance companies to network to their systems and share data.

5. Electronic Health Record Project (Attachment B)

   Any state wide EHR initiative should involve the Commonwealth's safety net providers, which include the 61 sites operated by Virginia's 50 Free Clinics. The Free Clinics' history of mutual cooperation and local partnerships with the Commonwealth's health systems make them a logical choice for beta testing of EHR software. Furthermore, the variety of clinic sizes, geographic locations, and varying degrees of computer sophistication of clinic staff would allow for a robust test of the technology. Since Virginia's Free Clinics are already accustomed to both caring for individual patients and tracking activities at a population level, a representative sample of Free Clinics might be the ideal way to test several facets of a statewide EHR system.

6. Electronic Health Record Project (Attachment C)

   The Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS) and the Virginia Association of Community Services Boards (VACSB) propose the creation of a public-private behavioral health regional health information organization (RHIO) in far Southwest Virginia that will link state-operated facilities to community services boards (CSBs), private providers, and other public and private partners (e.g., acute care hospitals, health plans, medical society, etc.) to electronically share behavioral healthcare information. The RHIO will additionally foster linkages with CARESpark, an emerging RHIO in the Northeastern Appalachian Region.

DRAFT

Part II: Report to the Governor's Electronic Health Records Task Force

Formal Virginia Surveys in EHR Use

An overview of the current status of EHR in Private Medical Practices in Virginia shows a wide variance of implementation in the Commonwealth. Subcommittee #2 obtained current EHR adoption survey information from three different sources as outlined below. In addition, the Subcommittee Members felt it was important to conduct an informal survey and request a number of different speakers to provide information on the current status of EHR development in Virginia.

The Virginia Academy of Family Physicians conducted a survey in the Spring of 2005 of their membership. Attachment D at the end of this report is their survey instrument. The Virginia Academy of Family Physicians provided permission to share the responses from questions numbered 6 & 7 to Subcommittee 2. The results were as follows:

Total Number of Surveys Mailed	1,591	Percent
Total Number of Surveys Received	499	31%
Do you have an EHR in your office?	Yes – 145 No – 350 No Response – 4	29% 70% 1%
If you don't have an EHR do you plan to implement one in the next two years?	Yes – 168 No – 152 No Response – 30	48% 43% 9%

The Medical Group Management Association (MGMA) surveyed more than 3,000 medical group practices to assess their current use of information technology and their plans for adopting electronic health records, and to understand the costs and benefits of EHRs and the barriers to and facilitators of adoption, via their Center for Research, funded by a grant from the AHRQ. Distribution of the ~120 responses from practices that responded to the survey in Virginia included 56 primary care practices (excludes OB/Gyn, pediatrics and geriatrics; includes general internal medicine, family practice, and multispecialty groups that provide primary care).

The following data for the State of Virginia is from a nationwide study in early 2005 by the Medical Group Management Association Center for Research.. This information is made avialable to Subcommittee 2 by Terry Hammons MD Sr Vice President, Research and Information Medical Group Management Association. The table information below provides information from the survey sample regarding the current status of electronic health records use in Virginia.

DRAFT

The survey sample of medical group practices was to assess the current use of information technology. "The survey examined their plans for adopting electronic health reocrds (EHRs), the costs and benefits of EHRs, and the barriers to and facilitators of adoption."… "We surveyed a nationally representative sample of medical group practices to assess their current use of information technology (IT). Our results suggest that adoption of electronic health records (EHRs) is progressing slowly, at least in smaller practices, although a number of group practices plan to implement an EHR within the next two years. Moreover, the process of choosing and implementing an EHR appears to be more complex and varied than we expected. This suggests a need for greater support for practices, particularly smaller ones, in this quest if the benefits expected from EHRs are to be realized." 1

1 Medical Groups' Adoption Of Electronic Health Records And Information Systems, Sept/Oct issue of Health Affairs, http://www.healthaffairs.org/

The following two tables provide significant information from this exhaustive study.

Virginia, Table 2a: Distribution of Practices by Type of Health Record for All Medical Groups

	Count	Percent
Paper medical records filed in record cabinet	93	75.0%
A scanned image filed electronically using DIMS	4	3.2%
A dictation and transcription system combined with a DIMS	8	6.5%
EHR storing information in a relational database	16	12.9%
Other	3	2.4%
Total	124	100.0%

Virginia, Table 2b: Distribution of Practices by Degree of Implementation of EHR for All Medical Groups

	Count	Percent
Fully implemented for all physicians and locations	15	12.2%
Implementation in process	16	13.0%
Implementation planned in next 12 months	25	20.3%
Implementation planned in next 13 to 24 months	27	22.0%
Not implemented and no planned implementation in 24 months	40	32.5%
Total	123	100.0%

DRAFT

The Governor's Task Force on Information Technology in Health Records Electronic Health Record Survey

The Department of Health conducted an electronic health record survey in September 2005 of a scientific sample of 209 physicians. Of the 126 respondents 33 currently have an EHR in use. Physicians in a hospital setting were more likely than those in a large group practice and a small group practice to have an EHR. Physicians with an HER system rated enhancec efficiency as the most important benefit from its use. Eighteen percent of the respondents in the Health Department Survey stated that they planned to implement an EHR system in the next two years.

Anecdotal Information from an Informal Survey

In addition to the formal survey results made available to the Subcommittee we conducted an informal review of physicians in the Richmond area with the assistance of the Richmond Academy of Medicine. The anadotal responses were varied and reinforce the challenges and opportunities of electronic health record adoption. The following exerpts were received in July 2005.

"My practice has looked at EMR off and on for some time. We have not changed to this system for a number of reasons, the most obvious of which is cost. The most recent system I priced was $7000 per physician per year.

These systems are widely varying in capability, utility, and ease of use and are far from being standardized. Converting current charts to EMR format would be an overwhelming project for most physicians' offices. A physician just starting practice (who can, of course , least afford it) would have the greatest ease in setting up this kind of record system in his/her office. For those who have been in practice even a few years, the conversion would likely be very costly and disruptive.

If physicians are to be encouraged or expected to use EMR systems, they will absolutely need serious help, financial and otherwise, in doing so."

"I'm responding to the request you forwarded through RAM regarding use of electronic medical records. I'm a pathologist with primarily a hospital based practice so my answers may not be too useful. *We have been totally electronic for approximately 15 years and it would be unthinkable to go back to manual records."*

The Attachments

The Subcommittee members held six (6) teleconference meetings during the summer months of 2005 before the October 3, 2005 Task Force Meeting. The Subcommittee hosted guest speakers and reviewed a volume of the latest information available regarding the developments in EHR to

develop its recommendations to the Task Force contained in this report. The attachments to the main body of the Subcommittee's Report represent the detail discussions, proposals, and presentations made to the Subcommittee during the full course of its six meetings.

Recap of Subcommittee #2 Conclusions

The following items constitute the major conclusions of Subcommittee #2:

1. The EHR Task Force and Commonwealth of Virginia should focus on a five-year plan that puts forth between five and seven major objectives. The objectives should:
    a. Come from the amalgamation of the subcommittee recommendations as established in committee reports;
    b. Have two major philosophical themes:
        - A focus on the enabling of data exchange;
        - A concern for market-driven assistance.

2. The Commonwealth's priorities over the next five years should include embracing all of the following roles, in the order in which they appear:
    a. Payer
    b. Purchaser
    c. Eliminator of Regulatory Barriers
    d. Provider
    e. Speaker from the Bully Pulpit
    f. Creator of Infrastructure

In closing, it is the opinion of Subcommittee #2 that the Commonwealth has both the leverage and the stakeholder interest to play several major roles in the promotion and successful adoption/implementation of EHR in private medical practice. By identifying those roles, the subcommittee is providing a point of departure for further progress. Furthermore, the subcommittee believes that the Commonwealth needs a long-range vision approach (e.g., five years) to the project because of its complexity and size. By making the facilitation of data exchange and market-driven assistance two of the larger themes in a five-year plan, the subommittee believes that the proper courses of action will evolve accordingly.

DRAFT

Attachment A: Discussion Paper for Virginia's Community Health Centers EHealth Project

The purpose of this discussion paper is to request that the **Community Health Centers' EHealth Project** be one of the pilot projects considered by the Governor's Task Force on Electronic Health Records. The twenty-one (21) Community Health Center organizations in Virginia serve the uninsured and underserved populations throughout the state in eighty-eight (88) urban and rural sites. Last year, the centers served over 62,000 uninsured and over 36,000 Medicaid patients with Primary Health Care needs.

In 2000, the centers coordinated their information technology efforts to establish a statewide network and operate a Practice Management system purchased from one vendor. Today, the Community Health Centers have strengthened the network by continuing to take advantage of the changes in connectivity as they develop, particularly in rural areas and by looking for opportunities to be cost-effective.

Over the past year the Community Health Centers formed a dedicated workgroup consisting of physicians, administrators, and IT personnel to look at the possibility of purchasing and installing an EHealth Record. The group has investigated over fifteen (15) Electronic Medical Record systems and is developing a process to select the final vendor(s). There is a lot of excitement among the Community Health Center staff around the EHealth record because of the possibilities that exists once the system is implemented. E-Prescribing, clinical messaging and visit documentation are parts of an EHealth system which will improve care to patients, provide valuable cost savings and data to the providers, administrators, state agencies, insurance companies and researchers. The Community Health Centers expect to select, purchase and begin installation of the EHealth Record over the next ten months.

The plans and expectations of the Community Health Centers Workgroup are to develop a state wide integrated EHealth system that initially operates within the functioning network. Then, to reach out to partners such as hospitals, private practices, laboratories, radiology offices, the Department of Medical Assistance, the Virginia Department of Health and insurance companies to network to their systems and share data. The sharing will allow online coordination of care among providers, clinical messaging and benchmarking of clinical and administrative data. All of these lead to cost effective, quality driven health care for all patients.

While the workgroup realizes that there are obstacles along the way, three of the most important aspects of developing an EHealth system are in place - willing, excited providers, an established, functional network and the Community Health Center history and culture of working together to achieve a goal. These three components position the community health centers in a unique role to successfully implement an EHealth record while partnering with outside stakeholders to share data and improve health care.

In order to purchase and install the EHealth systems and to build interfaces with other systems in Virginia, the Community Health Centers' estimate the cost to be approximately $8 million.

DRAFT

Attachment B: Free Clinic Data Collection Project

June 2005 Status Report

Phase I: Assess current data collection systems and reporting by member clinics by June 2004

- Assemble and convene a Free Clinic Data Work Group comprised of directors and senior management staff from the member clinics, and VAFC staff. DONE
- Create and distribute assessment instrument to be sent to and completed by member clinics on their current data collection methodologies and systems. DONE
- Analyze quantitative and qualitative data compiled from the surveys and summarize into final report. DONE
- Collect and review current forms of data collection instruments used by member clinics in order to identify commonalities in data collected. DONE

Phase II: Develop an appropriate and achievable data collection plan for member clinics by December 2004

- Review other state free clinic associations' methods and programs for collecting statewide Free Clinic data. DONE
- Review data currently collected by clinics as well as that which the VAFC requires, and identify options for creating a data collection program. DONE
- Specify the data sets that will be developed into a web-based computer program for data collection by the clinics. DONE
- Acquire start-up funding to finance the first year of the contract with the IT vendor. DONE

Phase III: Issue an RFP and execute a contract with an IT vendor by August 2005

- Issue request for bids to prospective IT vendors to create and manage the Free Clinic web-based data collection program. IN PROCESS
- Review proposals from potential vendors, make decision, execute and announce contract to member clinics. STILL TO COME
- Work with contractor to initiate development of the web-based data collection program for pilot group of member clinics, as well as data conversion plans for individual clinics. STILL TO COME
- Identify which member clinics want to participate in the pilot group for the initial launch of the data program (on 1/1/06). IN PROCESS.

Phase IV: Complete infrastructure development, training, and technical assistance necessary for member clinics to begin collecting uniform data by January 2006

- Contractor to provide regional (and individualized, if necessary) training for member clinic staff and volunteers who will pilot the web-based data collection program. STILL TO

COME

. • Execute data conversion programs for pilot group of clinics to transfer all demographic information on patients served in 2005 and prior. STILL TO COME

• VAFC to review and articulate to member clinics the statewide Free Clinic data requirements of VAFC for those clinics who will NOT be participating in the pilot program. STILL TO COME

. • Contractor to provide additional technical assistance and support necessary for successful
program launch on January 1, 2006. STILL TO COME

Excerpt of VAFC-Member Clinic Data Collection Survey Results

A total of 35 of the then 42 VAFC member clinics responded to the survey during May and June of 2004. The survey questions covered a wide range of data related issues, some of which are germane to the activities of the Governor's Electronic Health Records (EHR) Task Force. The results for these portions of the survey are summarized below.

Computer Hardware and Software

It should be noted that all member clinics have at minimum of one computer and dial up access to the Internet. The majority of survey respondents (25 or 71.4%) indicated that their clinic computers were networked. All but one of the reporting clinics listed Microsoft Word as their word processing software and Microsoft Excel as their spreadsheet program. Nearly three-fourths (26 or 74.3%) of the clinics reported having the relational database program Microsoft Access. Survey respondents indicated the use of a variety of specialty software, including programs for scheduling and/or tracking medical and/or dental visits in the clinic, prescription-filling software (for those clinics with a pharmacy), and programs that enable the clinic to obtain free medications from pharmaceutical manufacturers. These programs ran the gamut from "home grown" spreadsheets and databases to commercially available software. Unlike the situation with word processing, spreadsheet, and database applications, little standardization was apparent.

Disease Management and Health Outcomes

Slightly more than two-thirds (25 or 71.4%) of the clinics reported having active disease management programs for patients with chronic diseases. The most commonly cited diseases were diabetes (25/25 or 100%), hypertension (13/25 or 52.0%), cholesterol reduction (9/25 or 36.0%), asthma (7/25 or 28.0%), and heart disease (7/25 or 28.0%). Three out of five (15/25 or 60.0%) of the clinics reported having two or more disease management programs. Common types of interventions included group classes and one-on-one sessions between the patient and clinic professional volunteers and/or staff as well as medical specialists. Many clinics also reported providing educational materials for chronic disease patients.

Four out of five (20/25 or 80.0%) clinics with disease management programs reported tracking the outcomes of their patients in disease management programs. Nearly all of these respondents manually extracted the relevant information from patient charts (18/20 or 90.0%). Although the vast majority of these clinics (18/20 or 90.0%) reported that they summarized and analyzed their outcome data, only two out of five (8/20 or 40.0%) noted that the outcomes data were entered into a database. Routinely collected outcome measures included clinical data

(e.g., blood pressure and weight), laboratory values (e.g., blood glucose and hemoglobin A1c), and utilization measures (e.g., number of provider visits required and number of medications being used).

Implications for the Governor's EHR Task Force

Any state wide EHR initiative should involve the Commonwealth's safety net providers, which include the 61 sites operated by Virginia's 50 Free Clinics. The Free Clinics' history of mutual cooperation and local partnerships with the Commonwealth's health systems make them a logical choice for beta testing of EHR software. Furthermore, the variety of clinic sizes, geographic locations, and varying degrees of computer sophistication of clinic staff would allow for a robust test of the technology. Since Virginia's Free Clinics are already accustomed to both caring for individual patients and tracking activities at a population level, a representative sample of Free Clinics might be the ideal way to test several facets of a statewide EHR system.

DRAFT

Attachment C: Creating a Public-Private Behavioral Health Regional Health Information Organization (RHIO)

A Proposal to the Governor's Task Force on Information Technology in Health Care

Proposal

The Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS) and the Virginia Association of Community Services Boards (VACSB) propose the creation of a public-private behavioral health regional health information organization (RHIO) in far Southwest Virginia that will link state-operated facilities to community services boards (CSBs), private providers, and other public and private partners (e.g., acute care hospitals, health plans, medical society, etc.) to electronically share behavioral healthcare information. The RHIO will additionally foster linkages with CARESpark, an emerging RHIO in the Northeastern Appalachian Region.

Background

The development of a National Health Information Network (NHIN) that interconnects care is part of the federal government's 10-year plan to provide most Americans with an interoperable electronic health record (EHR). David Brailer, M.D., Ph.D., appointed as head of the Office of the National Coordinator for Health Information Technology (ONCHIT) is promoting RHIOs as a strategy to achieve the goal of interconnecting care. RHIOs are essentially regional collaborations that allow healthcare providers to securely exchange clinical information in a given area or region across a decentralized technology environment.

More than 100 neophyte RHIOs are in various stages of formation across the nation. The federal government has not articulated a single approach to establishing a RHIO but is allowing regions to use a variety of business and information technology strategies to build the regional coalitions necessary for electronic information exchange.

One such coalition, CARESpark, based in Kingsport, Tennessee, was established in 2005, following two years of planning to establish a collaborative network to share healthcare information in the Central Appalachian Area, which includes Southwest Virginia. One of the key partners in CARESpark is Frontier Health, a private, not-for-profit behavioral health organization with more than 85 programs in Northeast Tennessee and Southwest Virginia.

Approach

DMHMRSAS and the VACSB propose a pilot project to connect Southwestern Virginia Mental Health Institute (SWVMHI) to at least three (3) CSBs and at least one private provider through an electronic network or RHIO. The pilot will be developed and implemented in partnership with Frontier Health, which will allow Virginia to learn from the experience of CARESpark, whose planning process has been recognized nationally by Dr. David Brailer as a model for its broad-based coalition, multi-state region, long-range and comprehensive scope, and development of a sustainable financial model.

Implementation of the pilot project will require the development of a sustainable business and governance model for the new RHIO, the basic components of an electronic health record in each participating organization, and the technological infrastructure for the transfer of data through a secure network.

Business and Governance Models

The first step in the development of a regional entity is building a coalition of stakeholders and developing consensus on a shared vision for the desired entity and the benefits to each stakeholder group. The inclusion of all key stakeholders, including consumers is critical to this process. Leadership for strategic business planning and implementation of the new RHIO should be guided by a neutral third party, which has no business stake in the outcome of the project. The most robust regional organizations that have been established are those that have adopted a multi-stakeholder not-for-profit structure with an independent decision making body that is not dominated by any stakeholder group. This type of organizational structure significantly reduces concerns regarding fraud and abuse and antitrust.

Electronic Health Records

Funding for the pilot project must include the development of an electronic health record within each participating organization to support data exchange. Participants must establish goals for information sharing and install electronic components to support these goals. A shared purchasing agreement for compatible systems is by far the most economic approach but may not meet the needs of all participating providers. Barriers to implementation may be minimized by agreements that establish standards for key functionalities of the information systems employed, common formats, and standardization of data and vocabularies, all of which are critical to interoperability, even in a decentralized system.

Infrastructure Development

The most common model for RHIOs proposes an open architecture, without a central data repository, which permits each participating organization to maintain its unique record system. Components of a typical RHIO infrastructure include: (i) access control that support HIPAA compliance; (ii) correlation of patient identifiers across disparate systems; (iii) an information locator service, which identifies where clinical data resides and accesses the requested information; (iv) and clinical portals that allow users to perform searches though a web-based interface. Integration of the pilot behavioral health RHIO with the CARESpark RHIO presents both a challenge and a unique opportunity to serve as a national demonstration site. An early linkage with CARESpark may allow for the first integration between two RHIOs and thus, it may serve as a model for the next step in the implementation of a national health information network..

Summary

The DMHMRSAS and the VACSB is proposing to pilot a regional behavioral health information organization in Southwest Virginia, linking state-operated facilities, community services boards

and private providers. Furthermore, the proposed project will seek to establish a collaborative relationship with CARESpark, a Central Appalachian RHIO, which serves behavioral health consumers in Southwest Virginia and Northeast Tennessee. This project will demonstrate the efficiencies of an EHR in a behavioral healthcare organization; improvements in quality, safety, and risk that can be realized through interoperability; and by linking with an established RHIO it has the potential to serve as a model for a national health information network.

DRAFT

Attachment D: Survey by the Virginia Academy of Family Physicians

Information Technology Survey – Spring 2005

The VAFP is planning to include educational sessions on information technology on its future Continuing Medical Education programs. We ask that you complete the following survey so the VAFP can ensure the sessions focus on the needs of the membership. Please return the survey to the VAFP Headquarters office no later than March 1, 2005. You may fax the survey to 804-968-4418 or complete it on-line at www.vafp.org.

Computers

1. Do you utilize a computer for internet access and e-mail? **Y or N**

2. If yes, is the computer used

_____ Only at your office.

_____ Only at your home.

_____ In both office and home.

3. If yes, how often do you access the internet/e-mail?

_____ Very Frequently - Multiple times Per Day

_____ Frequently - Once Per Day

_____ Infrequently

Personal Digital Assistants

4. Do you use a personal digital assistant (PDA) in your medical practice? **Y or N**

5. If no, would you be interested in purchasing a PDA if the VAFP obtained a group discount for Academy members? **Y or N**

Electronic Health Record (EHR)

6. Do you have an electronic health record in your office? **Y or N**

7. If no, do you plan to implement one in the next two years? **Y or N**

8. If yes, do you anticipate adopting an EHR all at once or in incremental components?

_____ All at Once

_____ Incremental Components

9. If incremental please rank in order of highest priority (1 – 4).

____ Billing

____ Scheduling

____ Record of health care appointment

____ Other _____

10. Would you attend a full day technology seminar sponsored by the VAFP which would focus on EHR's, specifically on what criteria needs to be evaluated based on your practice size and what questions to ask when making a decision on technology purchases. Access to technology vendors would be available as well. **Y or N**

Technology CME Topics for Future VAFP CME Programs

11. Which of the topics listed below would interest you?
Please check all that apply.

Creating Powerpoint Presentations _____

Utilizing the Internet as a Reference _____

Learning the Basics of Computers _____

Palm Pilots in Medicine (Beginner PDA Use) _____

Palm Pilots in Medicine (Advanced PDA Use) _____

Purchasing an Electronic Health Record _____

Efficiencies of Electronic Health Records _____

Other:

DRAFT

Attachment E: CareSpark Report

Visit the site below for more informaton on CareSpark.

http://www.carespark.com

DRAFT

Attachment F: Best Practices

The current status of electronic health records in Virginia includes providers that are aggressively pursuing the promise of paperless and integrated systems to reap the benefits of implementing health IT systems. The Subcommittee members and others forwarded the following synopsis of their uses of EHR in their settings to the Subcommittee for its review.

Carilion Health Systems

Headquartered in Roanoke, Carilion Health System is a not-for-profit regional health care provider spanning southwestern Virginia. Dispersed across 1400 square miles and delivering care from 100 locations, Carilion uses state of art technology and a caring touch for the communities we serve. Carilion is nationally recognized for both our quality of care and our innovative use of information and medical technology. Recent examples of our accomplishments include winning the 2002 National Quality Award, 5 time winner of the America's Most Wired and Most Wireless Hospitals Award, achieving Magnet Nursing Status and continually ranking as one of the US's most integrated delivery systems.

Hospital Medication Safety

Carilion was one of the first delivery systems in the United States to fully implement a comprehensive, wire less Medication Administration System. This system provides a "real-time electronic safety net" for hospitalized patients. Every patient, caregiver and medication is identified with an electronic bar code while the process of administrating medications and documenting the outcomes is completed automated. An automated drug dispensing system, using finger print identification technology controling access to medications connected via a wireless communications network means that each step in the medication process is supported and verified for accuracy. The results of this system have been to dramatically improve patient safety. On average, over two million annual does are issued with this network and this highly sophisticated system prevents more than 500 serious mistakes each month while providing a rich resource of data about the medication process.

Emergency Department Electronic Medical Record

All of Carilion's hospital emergency departments are linked via a single Electronic Medical Record. Consequently, physicians have access to every emergency room visit in any Carilion hospital. As a result, the status of each patient in every location is constantly known and monitored as to movement within the care process, including the status all tests, treatments and results. In addition, this electronic medical record has created an environment of completely paperless and radiological film less operation. Physicians are able to view orders, x-rays and complete charts in any treatment room. These emergency department records are also electronically sent to our physician office electronic records and our Physician Portal. The portal combines all Carilion hospital, physician office and Emergency Room charts into a single physician view. Therefore, physicians have information helping them manage care and ambulance traffic across the region as well as identifying patients who attempt to defraud emergency rooms seeking unwarranted prescriptions.

Physician Offices Electronic Medical Record

Carilion's Physician Office Electronic Medical Record is one of the most advanced anywhere. Over 650,000 patients have their complete records online linking some 2500 physicians and caregivers. 1.2 million patient appointments are stored in the computer and a patient's record is accessible in any of Carilion's care locations. This online paperless system provides our healthcare providers with access to all records and results. With its state of the art tools, the computers can review numerous data elements and provide decision support for providers in real time, at the point of care. Each day more than 5000 patient prescriptions are electronically transferred to 100 regional pharmacies. Meanwhile, physicians can roam between their offices, the hospital, and their homes viewing medical records on their cellular telephones. Pioneering innovation has been the hallmark of these ambulatory efforts including the real-time acquisition of patient's vital signs automatically into the electronic chart. Finally, Carilion is leading the way in community based medicine as we analyze over 250 million electronic forms for research and care improvement activities.

MedVirginia

MedVirginia is a limited liability company based in Richmond, Va. MedVirginia was organized in 2000 by CenVaNet, a physician-hospital organization representing over 900 physicians and 10 hospitals, and Virginia Urology, a technology savvy physician practice with a long and successful history of clinical automation. MedVirginia has been a leader in HIPAA compliance, training over three-fourths of area physician practices in privacy and security. The vision of MedVirginia is to create the most electronically integrated medical community in the U.S. MedVirginia is taking a great stride forward in realizing its vision with the launch of MedVirginia Solution, a community health information exchange (HIE) that integrates inpatient, outpatient, pharmacy, lab and physician data from independent provider entities into a single, patient-centric, electronic chart.

While individual hospitals and physician practices have implemented HIT to varying degrees within their organization, MedVirginia's HIE will integrate data from multiple and independent sources. The health information exchange will be launched in the fall of 2005. MedVirginia will offer other physician practice automation tools, including electronic prescribing and electronic health records, for physicians to be able to improve both safety and efficiency. These tools will be fully integrated with the community clinical data in MedVirginia Solution.

MedVirginia is working closely with its partner, CenVaNet, in developing new strategies for managing chronic disease in part through the use of health information technology. CenVaNet is one of 14 sites nationally participating in the landmark study, Medicare Coordinated Care Demonstration (MCCD). In this Demonstration, over 1,400 high-risk seniors with chronic disease are being studied to determine the impact of disease management on quality, patient satisfaction and cost.

DRAFT

An example of how all the pieces fit together is medication management for seniors with chronic disease. Twenty (20) percent of seniors have 5 or more chronic conditions. These 20 percent average over 40 prescriptions per year, written by a number of different physicians. The opportunity for drug-drug and drug-allergy interactions is significant, since there currently is no centralized medication database for a physician to reference when prescribing a new medication. With MedVirginia Solution, such a centralized medication database is being created for reference by the physician. In addition, when a physician also uses MedVirginia's electronic prescribing tool, there are automatic clinical alerts that immediately warn the prescribing physician of possible problems with a particular medication. The e-prescribing application will reduce cost not only through the resulting reduction in adverse events, but also through improvements in formulary compliance. Physicians will also find the process for prescription re-fills much more efficient than current manual processes.

- A number of situations have been identified for which MedVirginia will be of support in improving the process of care delivery:

  - Emergency care – provides ready access to clinical data in critical emergency situations
  - On-call coverage by physicians – provides the covering physician more complete medical history than typically available
  - Telemedicine – provides valuable additional clinical data for the teleconsult
  - Rural health care – supports continuity-of-care for patients requiring referral to tertiary centers
  - Consults and referrals – more complete clinical history available to the specialty care physician
  - Safety net providers – supporting continuity-of-care and efficient approach to clinical automation
  - Multiple office locations – giving physicians universal access to clinical data
  - Hospitalists – being able to access more complete medical history
  - Ambulatory surgery center – being able to access more complete medical history

Bon Secours Richmond Health System is a major sponsor and data supplier for MedVirginia. All physicians and hospitals in central Virginia are eligible to participate in this community data exchange. MedVirginia will expand throughout the Commonwealth of Virginia to support other communities' interest in leveraging MedVirginia's infrastructure to meet their own local needs for data exchange and care improvement. MedVirginia can then serve an additional role of linking communities together, providing critical access to clinical data in referral and emergent situations.

MedVirginia has served as the key administrative and technical partner in the Rural Virginia E-health Collaborative (RVEC), an Agency for Health Research and Quality (AHRQ) funded program of Rappahannock General Hospital. The goal is to improve safety, quality and efficiency through the use of e-prescribing, e-results and e-referrals. Their local data exchange will be integrated with the MedVirginia HIE to support continuity-of-care in referrals to tertiary centers. Michael Matthews, CEO of MedVirginia, serves as Principal Investigator for RVEC.

- MedVirginia has been engaged with a number of organizations and initiatives targeting improvements in care delivery. These include:
  - Presentation before the Governor's Task Force on Information Technology in Healthcare.
  - Presentation at the AHRQ National Patient Safety Conference.
  - Collaboration with Virginia Health Quality Center, the Quality Improvement Organization for Virginia.
  - Collaboration with Community Care Network of Virginia, an association of federally qualified health centers with over 50 clinic locations across Virginia.
  - Partnership with SureScripts to promote electronic prescribing in physician practices across Virginia.
  - Partnership with Wellogic to develop and implement the architecture for the community HIE. Wellogic is a leading health care IT development firm in Cambridge, MA.
  - Partnership with athenahealth to provide integrated practice management systems to enhance business transactions by participating physicians.

CareSpark

One of the most promising aspects of the EHR movement is the ability to improve health and health care efficiency through the regional and national sharing of crucial health care information. Yet, one of the most daunting tasks in sharing that information is the overcoming of 'human' rather than 'technical' complications in our highly competitive health care market. When at stake is 15.5% of GDP, more than one seventh of the entire economic output of the United States, appealing to a vision larger than efficiency or cost savings is requisite in harnessing the "better angles of our nature" to create a zone of cooperation within our larger zone of competition.

Thus with regional health improvement as the mission, a non-profit organization now called CareSpark was created. CareSpark's planning process has been recognized nationally by Dr. David Brailer and others as a model for its broad-based coalition, multi-state region, long-range and comprehensive scope, and development of a sustainable financial model**.**

Care spark is a Regional Health Information Organization (RHIO); it was initiated when a broad-based coalition of healthcare providers, insurers, employers and community leaders determined the mission of regional health improvement imposed an overarching need for an efficient system to communicate and share health information and data among providers to enable coordination of care, clinical process and public health improvement.

CareSpark was developed through a two-year strategic planning process of needs assessment, research, consensus-building and planning that involved over eighty individuals from more than thirty organizations to assess feasibility, plan for technical and clinical implementation, financial sustainability and assure the effort was in accordance with state and federal regulations concerning privacy, security, and anti-trust. Serving 705,000 residents in 17 counties of the "Tri-Cities" TN / VA region of Central Appalachia, CareSpark is now poised to implement its sustainable business plan to enable in its local health care market of 1,200 physicians and 18 hospitals. The CareSpark business plan is provided in Attachment E.

DRAFT

Attachment G: Case Studies in the Development of EHR in Medical Practices

The Subcommittee invited speakers that included Doctor Hughs Melton from a small family practice in Lebanon, Virginia, Doctor Anton J. Kuzel, Chairman of the Department of Family Medicine at Virginia Commonwealth University, and Mr. James A. Lapsley, CEO of Loudoun Medical Group, a large speciality clinic in Northern Virginia. Each presenter shared with the Subcommittee the challenges and opportunities the development of EHR provides.

VCU's Experience

Dr. Anton "Tony" J. Kuzel, MD, M.H.P.E. – Chairman of the Department of Family Medicine VCU

Experience with 3 residency programs adopting EHR. First was Riverside (5 or 6 years ago) chose Logician system; 2 years ago Shenandoah Valley program chose A4 system; Fairfax Residency as of April 2005 went live with All Scripts. Each program saw the potential for improved patient safety with medications, possible reduction of overall healthcare expenditures, and reduction of duplicative tests. All practices saw reduction of revenue for the first 3 months or so. One saw a reduction of about 15%. He said 20% reduction is typical for the first month, and then more like 10% for the next two.

Dr. Kuzel did some research on ROI and found a net ROI of $80,000 per practitioner over 5 years. That was in the form of reduced expenditures on lab and X-rays and medications. The practices that experienced this were part of a network and were in Boston.

The issue of being part of a network is key. Individuals are more concerned; Dr. Kuzel thinks individuals believe that EHR won't make much difference for them. Entering patient information from charts is a concern for doctors who have huge numbers of charts. He referred to EHR as the inevitable and said that it is being required in residency programs. He said there is improved documentation and better flow to pharmacies in terms of better prescription refills associated with electronic systems. Recent paper in Annals of Family Medicine that looked at those that had EHR and those that didn't. Those that did have it ordered more hemoglobin Cs and more LDLs, but both those that did have EHR and those that did not showed improvement in chronic disease management.

Cost of implementing EHR per doc basis is roughly $10,000 to $20,000, according to Kuzel. He said having someone on hand to do the business analysis to help ensure the ROI is happening in some places and is helpful. He said that, in the way of who can benefit, insurance companies could benefit from unnecessary retesting. Multiple partners in a community or in a state can be brought together to play a role….

Dave asked how data is being put into these electronic health record systems. Kuzel said some doctors are cutting down patient load by 20% to do the data entry at or before the time of a visit. He also said that by 3 months in, most doctors are back up to their normal pace.

DRAFT

Impact of EHR on a Private Practice (C-Health)

Hughes Melton, MD

This is an example of a medical practice that started using EHRs right from the start—they never had a paper system.

- He said that, nationally, physicians are going to have to go electronic over the next 8 to 10 years.
- Biggest advantage has been flexibility and the ability to capture the work that you are doing. E.g., when you look at past medical history, it's all right there. Most systems have a module that allows you to deal with health maintenance types of items, which helps remind doctors to do maintenance things that they might not get to.
- Question was asked: What about the reduction of productivity from having to deal with electronic stuff rather than paper stuff. Dr. Melton said he did not think that was inevitable. He said he can chart the stuff while the patient is still in the room. "Snippets of down time" let you get your documentation done, he says. He said 90% of the time he is done with the record at the time that he finishes the appointment, so it is not more time-consuming, necessarily. He said Health IT is template-driven, and that they tailor those effectively.
- Question was asked about interfacing: Starting in September, they'll have a fax interface that allows faxed information to be electronic. Soon they will get an interface with their main reference lab.
- It was asked if he is electronically prescribing medications. He said he does not hand-write them anymore and that the fax interface will allow them to send them to pharmacies when it's set up.
- Question was asked: Any electronic interaction with Virginia Department of Health agencies. He said billing is done electronically. It was asked how he communicates with public health facilities – if it's electronic. He said that they print out a health summary and fax things, but that there is not direct electronic communication.
- It was asked about emergency departments and his office – whether they communicate electronically. He said no.
- It was asked if the templates lend themselves to greater keying accuracy and better reimbursement rates as a result. He said yes. He said they're not at a whole level higher as a result, but maybe 60-70% of a level higher.
- It was asked if the electronic environment allows them to do more sophisticated analyses so that they can see more patients and do a better job. He said they can do data mining to find out things, like how many patients have had mammograms, how many are diabetic, etc. The documentation is more efficient when patients call in. He said things get documented more completely because of the ease of getting to the "chart" – e.g., using the computer.
- It was asked if not having to search for paper charts translates into a revenue savings. Better coding and reduced denials are two immediate economic advantages. Being able to bill for all the work you have done is another benefit, as is being done with your work at the end of the day – e.g., no dictating for an hour or whatever. Also, it's quicker to go through a couple of computer screens than use paper. Not having to have a staff member

to pull charts, nor needing the space to store them, also helps. Just the E&M difference pays for the expense of the system, according to Dr. Melton.

- It was asked – whether or not theyhave gotten any grief for trying to use electronic signatures. He said no, with respect to HCFA 1500s. It was asked if Medicaid or Medicare had ever come in and done an audit – if everything was OK with the e-signatures in that case. Dr. Melton said yes. A note cannot be changed once it has been electronically signed. An addendum can be added, but it cannot be changed. Billing for the correct "chief complaint" has to be done. If medical attention was given for something NOT on the chief complaint line, then that may not end up being reimbursed – that kind of thing. It was suggested that some of the things we are trying to do with EHR may run counter to billing and reimbursement practices.

Challenges and Advantages of using EHR in a Large Private Medical Practice—Northern Virginia

James Lapsley, CEO of Loudoun Medical Group

Loudoun Medical Group (LMG) is multi-specialty, multi-physician owned facility. It has a very broad range of specialties with 150 providers including physicians, nurse practitioners, nurses. They have 51 locations and see about 500,000 patients annually. Company was formed in 2000. They do specialty and primary care.

They only recently decided to invest in EHR, and it is for them a $4 million investment. The hardware and implementation account for over 60 percent of the cost (The main cost is NOT the software.)_

Their main desire was to get rid of all of the paper. Also, they're in a high-tech area, so the consumers there have an interest in the electronic aspect. Patients have communicated electronically with physicians and done medical research on the internet and have made requests about EHRs.

LMG's interests were: elimination of variance of providing care, elimination of duplication of care, quality assurance, testing, compliance with documentation guidelines, etc. Also interest in what's being referred to as "wrap around" services where physicians in different specialties come together and implement a community medical record. If the community medical records can get prospective review to negotiate with preferred managed care contract rates, that would be good.

LMG had a two-year review process of hundreds of electronic medical records. They selected AllScrips. A key factor was physician buy-in. Had a lot of steering committees that lent themselves to buy-in on the part of the physicians, which he identifies as key to successful implementation.

DRAFT

They see it as a cost to the organization and will be pleasantly surprised if it adds benefit to their bottom line. He said Quality Assurance, variance of healthcare, and reduction of duplication are still very good reasons to do it, as is the elimination of pushing paper.

LMG did a lot to investigate the quality of the vendor as the area of electronic meddical records evolves. Because they are a big physician practice, the had the resources to conduct thorough cost analyses, research into different systems, and even requests for proposals. The wanted modular, scaleable systemthtat was easy to use .

They are just starting the implementation. Fairfax residency program is live with it. They see it as an 18-month to two-year process.

A question was asked about what they do with old medical records: They scan the whole record to avoid having to reach a consensus about which parts of the record could be omitted. They will have all interfaces (e.g., with reference labs, hospitals they use, most of radiology companies, billing system) soon. Interfaces should not be underestimated in the value they bring, but also the cost they bring. Interface with one of their reference labs was $30,000 by itself.

Challenges – Some are industry-wide, some specific to Loudoun Medical Group.
Every implementation will be different. Implementations will vary based on age of providers and type of specialty. Older physicians may be less comfortable with technology, for example. The functionality of the electronic medical record is still evolving. What are the differences in legal requirements for paper versus electronic? Lapsley indicated that this is an issue and that in many of the areas there is no case law on the subject just yet. The industry is evolving…He said that concerns them for other doctors who are not as well-equipped with resources.

Vendors making promises is an issue. Will vendors deliver to the small practices as they say they will? Again, cost of software is the smallest component. It's the hardware, implementation, and maintenance that are costly. It was asked if the $4M was just the initial cost. Lapsley said it would cover hardware, software, implementation, and the first year of "ongoing costs". He said well over 60% of their $4M is implementation and hardware.

A question was asked about whether the system has structured templates or whether the physicians just use unstructured notes. LMG will be using templates but can do unstructured notes as well. The templates also provide the information in letter form.

DRAFT

Attachment H: Members of Subcommittee #2 (EHR in Private Medical Practice)

The members of the Subcommittee #2 Electronic Health Records in Private Medical Practices include:

- Gregory S. Walton, MBA, MIS Senior Vice President and Chief Information Officer, Carilion Health System
- Carolyn W. Bagley, RN EHealth Project Director, Community Care Network of Virginia
- Stephen Borowitz, MD Professor of Pediatrics, University of Virginia Health Sciences Center
- Kippy Cassell, Director of Information and Technology, Piedmont Community Services
- Aneesh Chopra, Managing Director The Financial Leadership Council, The Advisory Board Company
- John J. Dreyzehner, MD, MPH, FACOEM Director, Cumberland Plateau Health District
- Doug Gray, MPA Executive Director, Virginia Association of Health Plans
- Carol B. Pugh, PHARM.D, MS Healthcare Data Consultant, Department of Community Outreach, Virginia Commonwealth University Medical System

DRAFT